Scoping for the Middle and South Fork Mill Creek A to Z Project
Three Rivers Ranger District, Colville National Forest
July 30, 2015

Background
This project is one of two planning phases being conducted under the Mill Creek A to Z Stewardship contract (Solicitation No. AG-05G1-S-13-9001). The first phase, the North Fork Mill Creek A to Z Project, started in November 2013 and is on-going. The second phase, the Middle and South Fork Mill Creek A to Z Project is covered in this packet.

Location
The Middle and South Fork Mill Creek A to Z Project area is located approximately 10 miles northeast of the town of Colville, Washington. It encompasses about 33,110 acres on the Colville National Forest (CNF). Approximately 26,500 acres is National Forest System (NFS) land. The balance is made up of Washington state trust lands and private inholdings. Table 1 displays the legal description of the project area.

Table 1. Legal description of the project area.

Township	Range	Sections
T 35 N	R 41 E	4
T 36 N	R 40 E	1-3, 9-15, 21-28, 34-36
T 36 N	R 41 E	3-11, 14-23, 26-33
T 37 N	R 40 E	25-26, 34-36
T 37 N	R 41 E	28-33

The Middle and South Fork Mill Creek A to Z project area also occupies portions of the 1702000302 and 1702000303 10^{th} code watersheds. The watersheds have multiple streams and tributaries that flow into main channels that then flow into the Colville River.

Purpose and Need
The difference between the desired future condition and the existing condition helps to identify what is needed to restore various resources in the project area. The existing condition was determined from available data sources, remote sensing, and field reconnaissance. Field surveys are being conducted during summer 2015 to validate these characterizations. The desired future condition was determined from the *Colville National Forest Land and Resource Management Plan* (Forest Plan), as amended.

The proposed action addresses the need to restore resources. It includes addressing:

- Vegetation that is outside of its natural disturbance regime;
- Forest stands that are susceptible to insects, disease, wildfire and drought;
- Hazardous fuels at strategically important areas for wildfire suppression;
- Little high quality lynx foraging habitat in Lynx Analysis Units 215 and 216;
- Pileated woodpecker core areas that are not within the best quality habitat;
- System and non-system roads contributing to sediment delivery;

- Lack of designated loop opportunities for off-road vehicle use;
- Devegetation and soil erosion along unauthorized user-created trails;
- Noxious weed infestations along NFS roads and in meadows;
- Limiting factors to fish production in streams crossing NFS land;
- Stream crossings that are barriers to passage of aquatic organisms; and,
- NFS roads not needed for administration, utilization, and protection of NFS land.

Meeting ecological needs for restoration would also lead to social and economic benefits to the local community through production of wood biomass for local mills, improvement of forage for livestock grazing, hiring of local labor and equipment for service projects, and improvement of recreation opportunities. This project would also help sustain the infrastructure needed for conducting similar projects elsewhere in the region.

Forest Stands

Historical fire regimes in the project area have been altered over the past century putting most stands on a trajectory that does not match the desired future condition. Nearly 100 percent of forests on NFS lands were established after extensive wildfires in 1929. Since the early 1930's, fire has been excluded from the landscape and naturally occurring fire has not occurred within most of the project area. Active forest management has been used, but most stands have closed in where treatments last occurred. About 60 percent of forested NFS land is in a single storied, dense, closed canopy stand structure. Overall, about 70 percent of forested NFS land in the project area has become overstocked.

The CNF forest in the project area do not provide "a complex mosaic of stands of varying ages, densities and sizes with interspersed stands of uneven-aged trees, even-aged trees, and stands of old growth trees" envisioned in the Forest Plan (p. 4-65) and that existed historically as expressed by the historic range of variability (HRV). Importantly, stand and fuel conditions have developed in most stands that were historically uncharacteristic for stands of their age. Forest composition, structure, spatial pattern, and function do not match the natural disturbance regime.

It is unlikely that this trajectory will naturally self-correct towards the desired future conditions because forest conditions in much of the proposed treatment areas are susceptible to uncharacteristically severe disturbances that would move the forest further away from reaching the desired future conditions. Most of the proposed treatment area is comprised of overstocked stands with reduced productivity due to inter-tree competition. Competition for light, water, and nutrients results in reduced tree vigor and increased stress, which weakens trees and makes them more susceptible to disturbance agents such as insects and disease. This can be exacerbated by long-term changes in climate such as severe drought and heat. This leads to tree mortality and buildup of dead fuel on the forest floor.

Through absence of low or mixed severity fires, many of these stands have developed dense understory that are now ladder fuels increasing the chances of ground fires becoming crown fires. Dense stands also have a greater risk to stand replacing fires due to their closed canopy structure which enables the spread of fire from crown to crown. The combination of fuel buildup from dying trees, ladder fuels, and dense closed canopies would increase the rate of fire spread, intensity, and severity in the project area.

These conditions also limit the ability to successfully achieve Forest Plan objectives (p. 4-58) to "apply aggressive suppression action to wildfires that threaten life, private property, public safety, improvements, or investments." These conditions are of strategic concern along primary travel routes (County roads 4954, 4668, and 4920 and NFS roads 7012, 7018, 9411, and 175), at the developed campgrounds at Little Twin Lakes, and at dispersed campsites located throughout the project area. At these locations, forest visitor use increases the probability for human-caused ignition and, if wildfire were to occur, wildfire would pose a direct threat to life and public safety. Also of strategic concern are potential wildfire threats to private properties within the project area.

Need: Proposed vegetation treatments are needed because forest stands have become homogenous and overstocked compared to the historic range of variability and are not on a trajectory to match the desired future condition for a complex mosaic of healthy forest stands. Overstocked stands have become more prone to insect and disease outbreaks, stand replacing wildfire, and severe drought. Hazardous fuels and conditions contributing to fuel buildup are located at strategically important areas for wildfire suppression.

Purpose: The purpose is to treat forest vegetation in order to move forest stands to more closely reflect historical tree species, spacing, and size classes, and to improve tree vigor, reduce the threat of severe wildfire, reduce susceptibility to insect and disease, respond to the potential effects of climate change, and reduce threats to life, property, and public safety.

<u>Lynx Foraging Habitat</u>

Approximately 12,000 acres of NFS land within the project area is within Lynx Analysis Units (LAU) 215 or 216, the majority of which occurs within LAU 215. Most of the habitat within these LAUs is considered suitable for lynx following guidelines in the *Canada Lynx Conservation Assessment and Strategy* (LCAS) (Interagency Lynx Biology Team 2013). Under the LCAS, a management objective within the LAUs would be to provide areas with a high density of small stems and dense horizontal cover, habitat preferred by snowshoe hare, which is a key prey species for lynx. Currently, about 500 acres of the project area on NFS lands within LAU 215 or 216 provide foraging habitat.

Silviculturally, foraging habitat would be achieved by creating openings in conifer stands, preferably lodgepole pine, that have developed beyond their ability to provide foraging habitat, and with post-harvest burning to promote dense regeneration. Pole-

sized and small sawlog-sized conifer occurs in these LAUs that would be suitable for implementation of this conservation measure.

Need: There is a need to promote the development of high quality lynx forage habitat within lynx habitat within LAU 215 and 216.

Purpose: The purpose is to treat potentially suitable habitat in the project area that overlaps with LAU 215 and 216 in order to promote the development of high quality lynx forage habitat.

Pileated Woodpecker Habitat

There is one designated pileated woodpecker core area within the project area. According to the Forest Plan (p. 4-39), these areas should "maintain 300 acres of conifers in seral/stages VI and/or V per pair for reproducing." Desired stand conditions include mature stands with frequent large hard snags. Portions of the pileated woodpecker core area lack these habitat characteristics and are not suitable for pileated woodpecker. However, more mature conifer habitat with large trees and dead wood do exist adjacent to the core area and are better suited to pileated woodpecker habitat needs.

Need: There is a need to improve habitat quality within pileated woodpecker core areas.

Purpose: The purpose is to relocate portions of the currently designated pileated woodpecker core area with poor habitat quality to an area of suitable pileated woodpecker habitat that occurs adjacent to the pileated woodpecker core area.

Forest Roads

Approximately 114 miles of NFS roads exist within the project area and are primarily used for travel corridors, access to private inholdings, dispersed recreation, and management of grazing allotments. Historically, these roads facilitated commercial timber harvest on NFS lands and private lands, and access to now abandoned mines. In addition, they provided access to historic homesteads within the project area. Currently, approximately 65 miles of these NFS roads are open to public vehicle traffic. Primary access roads are drivable with highway vehicles and most other open NFS roads are passable with high clearance vehicles. Approximately 49 miles of NFS roads are closed to vehicle access. The project area is not located within an inventoried roadless area.

The desired future conditions for NFS roads (Forest Plan pp. 4-61 through 4-65) state that "principle road systems will be complete with improved or paved surfaces" and "other roads will be closed or available for use by seasoned forest travelers using high clearance type vehicles" and "will appear less inviting for use, looking rough or primitive, but most will be available for use by the more experienced traveler." Road condition surveys will be conducted within the project area to identify specific road reconstruction and maintenance needs. Reconnaissance of the project area indicates that open NFS roads in

the project area are generally drivable. However, many have lost their surfacing and/or are rutted, affecting passage by highway vehicles on primary routes and by "experienced travelers" on other routes. A road fill failure on NFS road 130 prevents highway vehicle access to a dispersed recreation site on the summit of Old Dominion Mountain.

Acknowledging the linkage between roads and water quality, there is also the desired future condition that "water quality will remain high" and "consistently exceed state standards." To this end, there is the desired future condition that "drainage from roads and ditches will be successfully dispersed prior to entering streams." Substantial sediment delivery has been identified along County Roads 4668 and 4954—both primary access roads into and through the project area along the Middle and South Forks of Mill Creek, respectively—and on NFS road 175 along Hanson Creek. Other roads contributing to sediment to streams may become evident during field surveys. Culvert condition surveys will also be conducted to identify specific culvert maintenance needs. Reconnaissance of the project indicates that culverts in the project area are generally functioning. However, some have become blocked, buried, and/or disconnected from the road drainage system, affecting their ability to function properly.

Need: Maintenance of NFS roads is needed throughout the project area in order to provide access for safe and efficient travel, for private landowners, for dispersed recreation, and for grazing management. Maintenance or reconstruction of culverts and poorly surfaced and/or rutted road is needed throughout the project area to decrease sediment delivery to streams.

Purpose: The purpose is to minimize adverse impacts to aquatic habitat and hydrologic function caused by NFS roads while serving the needs of the public and providing for management of the National Forest.

Off-Road Vehicle Use

Forest Plan standards and guidelines (p. 4-37) seek to "designate areas for off-road vehicle (ORV) use through the Forest Travel Implementation Schedule and in conformance with [Recreation Opportunity Spectrum] designations for specific areas." The CNF Motor Vehicle Use Map, April 2015, designates several NFS roads open to all vehicles in the project area. Trail 142, part of a larger ORV trail system, traverses a portion of the eastern boundary of the project area. Otherwise, ORV designations within the project area are "out-and-back" routes. There are no ORV loops along NFS roads; however, opportunities exist to create loops along open and closed NFS roads.

Forest Plan standards and guidelines (p. 4-37) also seek to "manage ORV use to minimize resource damage and to promote public safety." ORV use is largely restricted to designated routes. However, unauthorized user-created trails occur near these routes and near to dispersed campsites. The CNF actively monitors unauthorized trail use and installs barriers and signage to discourage use of these trails. Some are very steep and not safe. Many of these user-created trails are devegetated with soil erosion.

Need: Designation of travel loops is needed in order to improve the quality of recreational ORV use in the project area. Rehabilitation of resource damage is needed along unauthorized user-created trails.

Purpose: The purpose is to improve the quality of ORV use in the project area while minimizing resource damage and promoting public safety.

Noxious Weeds

The desired future condition for noxious weeds is that "the occurrence and spread of noxious weeds will be reduced as a result of integrated pest management." Preliminary reconnaissance of the project area indicates that noxious weeds occur within the project area primarily along roads and in meadows, occasionally at high densities that compete with desirable vegetation. NFS roads and proposed treatment areas would be surveyed prior to project activities to locate specific infestations for treatment. Meadows occurring within the project area on NFS lands will also be surveyed; these areas often contain noxious weeds and may also contain sensitive plant species. Noxious weeds decrease quantity and quality of native grass species and other desirable plant species, affecting ecological integrity and habitat quality.

Need: There is a need to treat along roads and meadows to decrease the occurrence and spread of noxious weeds while avoiding negative impacts to sensitive plant species that may be present in the same area.

Purpose: Reduce the potential spread and reduce established populations of invasive species while protecting sensitive plant species.

Stream Habitat

The desired future conditions for fish (Forest Plan pp. 4-61 through 4-65) state "that management activities will exceed management requirements for fish and wildlife." Relevant to the habitat occurring in the project area, "stream crossings will be minimized" and "structures will be designed to provide the least resistance to upstream fish passage." "Water quality will remain high with water quantity increasing slightly."

Stream habitat surveys will be conducted on fish-bearing streams crossing NFS lands in the project area. Generally, stream channel conditions are expected to be good. However, local stream habitat degradation may be found where conditions are well below Inland Native Fish Strategy Riparian Management Objectives (INFISH RMO) for stream channel condition, pool frequency, or large woody debris. Additionally, there may be areas of concern regarding fine sedimentation (see Forest Roads above) and stream shade (a surrogate for stream temperature, also an INFISH RMO). Surveys will be used to locate reaches where active restoration could be used to move towards INFISH RMOs.

Fish passage surveys will also be conducted where NFS roads cross fish-bearing streams within the project area. Some passages may not provide for 100-year flows and are limiting habitat quality and/or may be perched or blocked, posing barriers to fish passage. Fish passage barriers limit access to stream habitat above the culvert and/or isolate populations above the barrier. These crossings do not meet the desired future condition that crossings "provide the least resistance to upstream passage" and that "bridges or bottomless arches be used instead of culverts" (Forest Plan p. 4-63).

Need: If stream surveys identify degraded stream habitat, stream channel conditions and stream habitat may need to be restored along specific stream reaches identified through field survey. Culvert replacement may be needed to remove barriers to fish movement.

Purpose: The purpose is to restore fish passage and restore and protect fish habitat.

Management Area and Forest Plan Direction
The proposed project is expected to meet Forest-wide standards and guidelines, including Forest Plan direction for Management Areas occurring within the project area.

- *Management Area 1* (1,413 acres) – The emphasis is old growth. Provide essential habitat for wildlife species that require old growth forest, and contribute to the maintenance of diversity of wildlife habitats and plant communities.
- *Management Area 3A* (3,962 acres) – The emphasis is recreation. The goal is to provide roaded and unroaded recreation opportunities in a natural appearing setting.
- *Management Area 5* (3,096 acres) – The emphasis is scenic/timber. The goal is to provide a natural appearing foreground, middle, and background along major travel routes while providing wood products.
- *Management Area 6* (195 acres) – The emphasis is scenic/winter range. The goal is to provide a natural appearing foreground, middle, and background along major scenic travel routes while providing for winter range management.
- *Management Area 7* (16,557 acres) – The emphasis is wood/forage. The goal is to manage to achieve optimum production of timber products while protecting basic resources.
- *Management Area 8* (1,276 acres) – The emphasis is big game winter range. The goal is to meet the habitat needs of deer and elk to sustain carrying capacity at 120 percent of the 1980 level, while managing timber and other resources consistent with fish and wildlife management objectives.

Management Area	Acres
MA 1	1,413
MA 3A	3,962
MA 5	3,096
MA 6	195
MA 7	16,557

MA 8	1,276
Non-FS Lands	6,611
Total	**33,110**

Proposed Action
Review of available data and field reconnaissance has been conducted during spring 2015 to identify proposed activities within the project area that meet the purpose and need for the project. Using this, the CNF proposes to conduct the following commercial harvest and restoration activities in the Middle and South Fork Mill Creek A to Z Project area:

Forest Stand Treatments

- Conduct commercial thinning, shelterwood harvest, and aspen stand restoration on up to 17,760 acres in order to:
    - Maintain or enhance forest composition, structure, spatial pattern, and function appropriate to the natural disturbance regime and forest type;
    - Allow natural processes to function that will provide resilience to uncharacteristic wildfire and climate change; and,
    - Reduce hazardous fuels within strategically important areas for wildfire suppression to minimize adverse impacts to life, private property, public safety, improvements, or investments.

  Road-based (tractor and cable) and helicopter logging systems would be employed. Untreated (retention) areas would be left within commercial harvest units to provide resource protection or to maintain structural diversity.
- Create shaded fuel breaks along major travel routes in the project area (County roads 4954, 4668, and 4920 and NFS roads 7012, 7018, 9411, and 175) to reduce hazardous fuels at strategically important areas for wildfire suppression;
- Create shaded fuel breaks at Little Twin Lakes campground and at significant dispersed recreation sites throughout the project area in order to reduce hazardous fuels at strategically important areas for wildfire suppression;
- Conduct fuel hazard reduction treatments around rural residential properties in the project area in order to reduce hazardous fuels at strategically important areas for wildfire suppression;
- Conduct post-harvest broadcast burning or pile and burning within proposed road-based harvest units in order reduce hazardous fuels within strategically important areas for wildfire suppression;
- Conduct manual site preparation and plant desired species within proposed shelterwood harvest units in order to ensure tree regeneration; and,

- Conduct about 900 acres of precommercial thinning in order to improve tree vigor, reduce susceptibility to insects and disease, and reduce wildfire threats.

Lynx Habitat Restoration

- Within commercial treatment units in LAU 215 and 216, create openings and conduct post-harvest burning in order to promote the development of high quality lynx foraging habitat.

Pileated Woodpecker Core Area

- Relocate portions of an existing pileated woodpecker core area to areas with more mature conifer habitat with large trees and dead wood in order to improve habitat quality in the designated pileated woodpecker core area.

Road Construction and Maintenance

- Maintain and reconstruct up to 114 miles of NFS road to restore their running surface and minimize adverse impacts to aquatic habitat and hydrologic function while serving the needs of the public and providing for Forest management;
- Conduct heavy reconstruction along County Road 4668 in order to reduce sediment delivery to Middle Fork Mill Creek;
- Conduct heavy reconstruction along County Road 4954 in order to reduce sediment delivery to South Fork Mill Creek;
- Realign NFS Road 175 in order to reduce sediment delivery to Hanson Creek while maintaining access for forest management and designated ORV use;
- Reconstruct NFS Road 130 in order to restore highway vehicle access to significant dispersed recreation sites at the top of Old Dominion Mountain;
- Expand borrow pits within and/or adjacent to the project area in order to provide surface material for proposed NFS road construction and maintenance activities; and,
- Construct about 20.5 miles of temporary road on existing unauthorized roadbed and on new temporary roadbed to provide access to proposed harvest units.

Recreational Vehicle Access

- Improve the quality of ORV use in the project area by creating a loop by designating NFS road 7018 open to all vehicles.
- Recontour and revegetate unauthorized user-created trails throughout the project area in order to rehabilitate resource damage and improve safety.

Noxious Weed Control

- Use approved herbicides to control noxious weed infestations in order to reduce the potential spread and reduce established populations of invasive species while protecting sensitive plant species.

Field surveys will be conducted during summer 2015 in order to validate these proposed activities. These surveys will also evaluate current conditions relative to desired future conditions in order to assess the need for and locate the following activities:

Stream Habitat Restoration

- If stream surveys identify degraded stream habitat, restore stream habitat in order to achieve high quality aquatic habitat; and,
- If fish passage surveys identify barriers to aquatic organism migration, replace passage structures with arch style culverts in order to enhance or restore passage of aquatic organisms and to accommodate 100-year flow levels.

A Road Analysis Report (RAR) will also be prepared to identify the minimum system needed for safe and efficient travel and for administration, utilization, and protection of NFS lands per 36 CFR 212.5(b)(1). This analysis will assess the need for and location of NFS roads for decommissioning in order to minimize adverse impacts to forest resources while serving the needs of the public and providing for forest management.

Activities would be implemented from an expected start date in 2016 and run through October 2023.

Literature Cited

Interagency Lynx Biology Team (ILBT). 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, Montana. 128 pp.